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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,113	12/19/2001	Li Shu	DPL-014	5703

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EXAMINER	
CHOUDHURY, AZIZUL Q	
ART UNIT	**PAPER NUMBER**
2145	

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/025,113	SHU, LI	
	Examiner	Art Unit	
	Azizul Choudhury	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/28/02, 12/27/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Michael O. Rabin in the journal article, "Efficient Dispersal of Information for Security, Load Balancing, and Fault Tolerance," in the Journal of the Association for Computing Machinery, Vol. 36, No. 2, April 1989, pp. 335-348, hereafter referred to as Rabin.

1. With regards to claim 1, Rabin teaches an apparatus for facilitating reliable storage of a file, comprising: a file processor for converting the file into N storage segments that enable reassembly of the file from a subset of any M of the storage segments, where N and M are positive integers, and $N > M \geq 1$; and means facilitating storage of at least M of the N storage segments (Rabin teaches a distributed storage design using the Information Dispersal Algorithm (IDA) (p. 336, Rabin). This algorithm breaks a file into N pieces and stores the segments in N distributed locations. The data is reconstructed using any M pieces where M is less than N (p. 336, 7th paragraph, Rabin)).

2. With regards to claim 2, Rabin teaches the apparatus wherein the means facilitating storage is a storage segment transmitter that transmits at least M storage segments toward one or more storage devices (Rabin's design stores the N pieces of data in N places (p. 336, Rabin). It is inherent that the claimed transmitter is present within the design).

3. With regards to claim 3, Rabin teaches the apparatus further comprising a storage segment retriever that requests the at least M storage segments from the one or more storage devices, and a file reassembler that reassembles the file after receiving as few as M of the N storage segments (Rabin's design allows for a file that is broken into N pieces to be reassembled from M pieces (p. 336, Rabin). It is inherent that since the file is reassembled that a reassembler is present within the design).

4. With regards to claim 4, Rabin teaches the apparatus wherein the storage segment transmitter transmits each one of the N storage segments to one of N geographically distributed storage devices (Rabin's design stores the N pieces of data in N places (p. 336, Rabin)).

5. With regards to claim 5, Rabin teaches a method of facilitating reliable storage of a file, comprising the steps of: converting the file into N storage segments that enable reassembly of the file from a subset of any M of the storage segments,

where N and M are positive integers, and $N > M \geq 1$; and storing at least M of the N storage segments (Rabin teaches a distributed storage design using the Information Dispersal Algorithm (IDA) (p. 336, Rabin). This algorithm breaks a file into N pieces and stores the segments in N distributed locations. The data is reconstructed using any M pieces where M is less than N (p. 336, 7th paragraph, Rabin)).

6. With regards to claim 6, Rabin teaches a method further comprising the steps of retrieving at least M of the N storage segments and reassembling the file from the retrieved storage segments (Rabin's design allows for the data broken into N pieces to be reassembled from M pieces (p. 336, Rabin)).

7. With regards to claim 7, Rabin teaches the method wherein the step of storing comprises transmitting at least M storage segments toward one or more storage devices, and the step of retrieving comprises transmitting a request for storage segments of the file to the one or more storage devices (Rabin's design allows for a file to be broken into N pieces and allows N pieces to be saved in N locations. But only M pieces are needed for reassembling the file. It is inherent that only sending out M pieces is within the scope of Rabin's design).

8. With regards to claim 8, Rabin teaches the method wherein the step of transmitting at least M storage segments comprises transmitting the N storage

segments to N storage devices (Rabin's design allows for a file to be broken into N pieces and allows N pieces to be saved in N locations (p. 336, Rabin)).

9. With regards to claim 9, Rabin teaches the method wherein the step of transmitting at least M storage segments comprises transmitting the N storage segments to N geographically distributed storage devices (Rabin's design allows for a file to be broken into N pieces and allows N pieces to be saved in N locations (p. 336, Rabin)).

10. With regards to claim 10, Rabin teaches the method wherein the step of storing comprises transmitting at least M storage segments to one or more storage devices of a :plurality of network devices, and the step of retrieving comprises transmitting to a server a request for storage segments of the file, wherein the server posts messages to the one or more storage devices requesting the one or more storage devices to transmit storage segments of the file to a requester (Rabin's design breaks a file into N pieces and stores the segments in N distributed locations. The data is reconstructed using any M pieces where M is less than N (p. 336, 7th paragraph, Rabin). The other claimed steps are inherent within designs involving networked devices. For networked devices to communicate, they must send, receive and serve messages to one another. Rabin's design makes use of networked devices (p. 335, Rabin)).

11. With regards to claim 11, Rabin teaches the method further comprising the step of storing, at the server, identity information about the plurality of network devices to impede an intruder from learning the identity information about the plurality of storage devices (Rabin discloses a distributed computing design (p. 335, Rabin). Furthermore, Rabin's design uses this distributed computing to have one computer send data (the N data segments of the broken down file) to multiple places for storage. It is thus inherent that the server (the computer sending the data segments) has information concerning the other nodes of the network).

12. With regards to claim 12, Rabin teaches the method further comprising the step of storing, at the server, identity information about the one or more storage devices storing the at least M storage segments to impede an intruder from learning the identity information about the one or more storage devices (Rabin discloses a distributed computing design (p. 335, Rabin). Furthermore, Rabin's design uses this distributed computing to have one computer send data (the N data segments of the broken down file) to multiple places for storage. It is thus inherent that the server (the computer sending the data segments) has information concerning the other nodes of the network).

13. With regards to claim 13, Rabin teaches the method further comprising the step of causing conversion of at least one of the M storage segments into N_2 storage segments that enable reassembly of the at least one storage segment from a

subset of any M_2 of the N_2 message segments, where N_2 and M_2 are positive integers and $N_2 > M_2 \geq 1$; and wherein the step of storing at least M of the N storage segments comprises storing at least M2 of the N2 message segments (Rabin's distributed computing design uses an algorithm that breaks a file into N pieces and stores the segments in N distributed locations. If necessary, each of the segments of the file is segmented into sequences. So, Rabin's design allows for the file to be broken into M sequences for each of the N pieces (p. 338, Rabin). The data is reconstructed using any M pieces where M is less than N (p. 336, 7th paragraph, Rabin)).

14. With regards to claim 14, Rabin teaches the method wherein the step of causing conversion of at least one of the M storage segments comprises causing conversion by a node, and wherein the step of storing further comprises: transmitting the at least one of the M storage segments to the node; and causing the node to transmit the at least M_2 storage segments to one or more storage devices (Rabin's distributed computing design uses an algorithm that breaks a file into N pieces and stores the segments in N distributed locations. If necessary, each of the segments of the file is segmented into sequences. So, Rabin's design allows for the file to be broken into M sequences for each of the N pieces (p. 338, Rabin). The data is reconstructed using any M pieces where M is less than N (p. 336, 7th paragraph, Rabin). Since Rabin's design stores the N

pieces of data in N places (p. 336, Rabin). It is inherent that the claimed transmitter is present within the design).

15. With regards to claim 15, Rabin teaches the method further comprising the steps of: causing retrieval of at least M_2 of the N_2 storage segments; and reassembling the at least one of the M storage segments before reassembling the file from at least M of the N storage segments (Rabin's distributed computing design uses an algorithm that breaks a file into N pieces and stores the segments in N distributed locations. If necessary, each of the segments of the file is segmented into sequences. So, Rabin's design allows for the file to be broken into M sequences for each of the N pieces (p. 338, Rabin). The data is reconstructed using any M pieces where M is less than N (p. 336, 7th paragraph, Rabin). Since Rabin's design stores the N pieces of data in N places (p. 336, Rabin). It is inherent that the claimed transmitter is present within the design).

Remarks

The claims submitted have been carefully reviewed, but are not deemed fully persuasive. The traits of the invention claimed are possessed within a design submitted for publish by Michael O. Rabin. Rabin's design focuses on storage in a distributed network. When a file is stored, it is broken down into N pieces and is stored in up to N locations. When the file is to be reconstructed, only M of the pieces are required, where M is less than N. It is believed by the examiner that the claimed invention lacks novelty

when compared against Rabin's design. The applicant and their representatives are encouraged to amend the claims if they feel that distinguishing characteristics are present within the specifications of the design.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Azizul Choudhury whose telephone number is (571) 272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace can be reached on (571) 272-6159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AC

V. Martin Wallace
Supervisory Patent Examiner